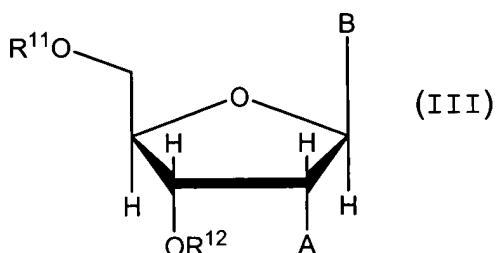


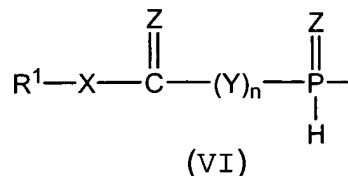
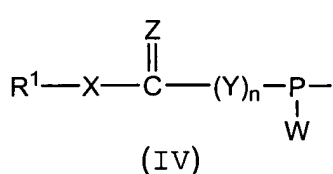
**PHOSPHINOAMIDITE CARBOXYLATES AND ANALOGS THEREOF IN THE SYNTHESIS  
OF OLIGONUCLEOTIDES HAVING REDUCED INTERNUCLEOTIDE CHARGE**

**ABSTRACT OF THE DISCLOSURE**

Nucleoside phosphinoamidite carboxylates and analogs are provided that have the structure of formula (III)



wherein A is hydrogen, hydroxyl, lower alkoxy, lower alkoxy-substituted lower alkoxy, halogen, SH, NH<sub>2</sub>, azide or DL wherein D is O, S or NH and L is a heteroatom-protecting group, unsubstituted hydrocarbyl, substituted hydrocarbyl, heteroatom-containing hydrocarbyl, or substituted heteroatom-containing hydrocarbyl; B is a nucleobase; and one of R<sup>11</sup> and R<sup>12</sup> is a blocking group and the other is (IV) or (VI)



in which W, X, Y, Z, R<sup>1</sup> and n are as defined herein.